

15. (Amended) The filter of claim 4 where there are three offset holes, each of said holes having a right and left side with reference to the top surface, with one offset hole on each of the two ends of said filter and the third to the right of two non-offset holes and to the left of three non-offset holes.

16. (Amended) The filter of claim 4 where the filter has a right end and a left end with reference to the top surface, and where there are two offset holes, each of the holes having a right side and a left side with reference to the top surface, with one offset hole on the left end of said filter and the offset hole having two non-offset holes to the left of said second offset hole and three non-offset holes to the right of said second offset hole.

In the Specification:

Please replace the paragraphs indicated with the following rewritten paragraphs:

p. 4, 4th paragraph:

Figures 4A-4B illustrate one preferred embodiment of a printed pattern for a filter designed to perform as the equivalent circuit of Figure 3.

p. 4, 5th paragraph:

Figure 5 compares the similarity in electrical performance between the filter designed in accordance with the present invention shown in Figure 3 and a prior art filter, as shown in Figure 1.

p. 4, last paragraph-p. 5, first paragraph:

Figure 7A-7B illustrates one preferred embodiment of a printed pattern for a duplexer designed to perform as the equivalent circuit of Figure 6. Figures 7C-7D, 7E-7G, 7G-7H and Figures 7J-7K and additional preferred embodiments and their equivalent circuits.

p. 5, under Detailed Description, please add the following paragraph:

Figure 1 depicts a typical equivalent circuit of a prior art filter while Figure 2 illustrates the typical printed pattern of a prior art filter designed in accordance with the equivalent circuit of Figure 1.

p. 5, under 1st paragraph after Detailed Description, please add the following paragraph:

C_1 is the capacitance of coupling between input/output electrode and resonator Θ_1 ; C_2 is the capacitance of coupling between Θ_1 and Θ_2 ; and C_3 is the capacitance of coupling between input/output electrode and resonator Θ_2 . Z is the inductance of coupling between Θ_1 and Θ_2 . The shaded portion of the electric pattern, weakens C_2 . As a result of the weakened C_2 , Z is relatively strengthened.

p. 5, last paragraph:

Furthermore, Θ_1 also functions as a trap resonator by adjusting the coupling of C_1 , C_2 and C_3 as to be $C_1 > C_3 > C_2$. Thus, Θ_1 can work as both a transmission pole and a trap resonator. Due to the unique pattern of the filter, Θ_1 can act as both a trap resonator and transmission pole, thus reducing filter size by eliminating one transmission pole. (See Figures 3 and 4A)

p. 6, 3rd paragraph:

Fig. 4B shows parameters C_1 , C_2 and C_3 . C_1 is controlled by the distance between pattern 1 (not shown) of conductive material for input/output electrode and pattern 3 (not shown) of conductive electrode connected to conductive material on the inner surface of hole of Θ_1 resonator (Fig. 3), and C_3 is controlled by the distance between pattern 1 (not shown) and pattern 4 (not shown) of conductive material connected to conductive material on the inner surface of hole of Θ_2 resonator (Fig. 3). C_1 , C_2 and C_3 are capacitances of coupling as described above in Figure 4B. Z is an inductive coupling and is controlled by the pattern 2 (not shown) of conductive material that is opposed to the pattern 1 (not shown) and is connected to the conductive material on the side wall. The relationship of C_1 , C_2 and C_3 , to each other is as follows, $C_1 > C_3 > C_2$.

p. 7, 1st full paragraph:

We can also apply the concepts of this new filter technology to a duplexer. Figures 7A-7B is an embodiment of a printed pattern duplexer of the present invention. Figure 6 is its equivalent circuit for a duplexer designed in accordance with another embodiment of the present invention. Figure 6 and Fig. 7A-7K show examples of new equivalent circuits and printed patterns, as applied to a duplexer. The duplexer of Fig. 6 and Figs. 7A-7B has eight (8) transmission poles and three (3) trap resonators, but it can work as a filter with nine (9) transmission poles and three (3) trap resonators. In most cases, the higher band is the receiver band and the lower band is the transmitter band at the mobile phone terminal sides. These designations become reversed at the base station sides. However, it is noted that the relationship of the receiver band and the transmitter band, on the one hand, and the higher/lower bands on the other hand are not always consistent.

p. 7, 2nd full paragraph:

The frequency of the offset hole at the center of the duplexer is nearly equal to that of higher band. In this case, higher band side is the right side of duplexer in Figure 7A. One embodiment of the duplexer filter has three input/output pads and three patterns of conductive material connected to those pads. The duplexer filter may or may not have trap holes at both sides of the filter.

p. 8, Insert these paragraphs before the last paragraph before What is Claimed Is:

Figures 7C-7K show alternative embodiments of the dielectric block of the present invention and their equivalent circuits. The values of W, X, Y1 and L are varied as is optimal for the present invention.

Figure 8A illustrates another embodiment of the present invention, with Figure 8B showing the equivalent circuit. This figure has two (2) transmission poles and one (1) trap resonator, but it can work as a filter with three (3) transmission poles and one (1) trap resonator.

In the Drawings:

Figs. 1, 2, 9, 10, 11: The term "Prior Art" has been added to the description.